

COMPREHENSIVE SURVEY REPORT

Mapping High-Potential Zones for Cold (Trout), Semi-Cold and Warm-water Aquaculture across Khyber Pakhtunkhwa Province and Developing a Cluster-based Commercialization Strategy

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COMPREHENSIVE SURVEY REPORT

FIELD ACTIVITY REPORT

1. INTRODUCTION

This report summarizes the field survey activities conducted under the project "Promoting Sustainable Expansion of Aquaculture in Khyber Pakhtunkhwa through Mapping the High-Potential Zones and Developing the Commercialization Strategy" (TCP/PAK/4005). The project is a collaborative effort between the Food and Agriculture Organization of the United Nations (FAO) and the Fisheries Development Board (FDB) of Pakistan. The field surveys, corresponding to activity 1.5 of the revised workplan, were carried out to identify and assess high-potential zones for cold, semi-cold, and warm-water aquaculture across the Khyber Pakhtunkhwa (KP) province. This report presents the methodology, key findings, and a summary of the field activities, and serves as a crucial input for the subsequent stages of the project, including the development of a comprehensive commercialization strategy for cluster-based fish farming in the region.

2. METHODOLOGY

The field surveys were conducted between October and November 2025, following a robust methodology outlined in the "Field Survey Protocol" document. A multi-stage, stratified purposive sampling approach was employed, integrating desk-based research, extensive field surveys, and GIS-based spatial analysis. The survey was organized into three teams, each focusing on a specific aquaculture zone:

- **Team A (Cold Water Zone):** Led by Mr. Khalid Mahmood, this team covered the high-altitude regions of the province.
- **Team B (Semi-Cold-Water Zone):** Led by Ms. Kanwal-Un-Nisa, this team focused on the mid-altitude areas.
- **Team C (Warm Water Zone):** Led by Mr. Muneer Hussain, this team surveyed the plains and low-altitude regions.

A three-tiered priority system (Priority 1: Must Visit, Priority 2: Should Visit, Priority 3: Opportunistic) was used to guide the site selection process. Data was collected using a

combination of tools, including a detailed enumerator survey form, a consultant survey form, a Mobile Data Collection Application (MDCA), GPS devices for location mapping, and water quality testing kits. The parameters assessed at each site included water quality, water availability, topography, soil suitability, accessibility, infrastructure, market proximity, and socio-economic factors.

3. KEY FINDINGS

A total of 347 sites were surveyed across the three zones, providing a comprehensive dataset for assessing the aquaculture potential of Khyber Pakhtunkhwa. The following sections summarize the key findings from the field surveys.

3.1. Overall Survey Statistics

Zone	Team Lead	Sites Surveyed	Districts Covered
Cold	Khalid Mahmood	88	8
Semi-Cold	Kanwal-Un-Nisa	106	11
Warm	Muneer Hussain	153	15
Total		347	34

The distribution of surveyed sites reflects the geographical diversity of the province and the varying potential for different types of aquacultures.

3.2. Zonal Analysis

3.2.1. Cold Water Zone

The cold-water zone, primarily surveyed by Team A, shows significant potential for trout farming. The key findings include:

- **High Potential Districts:** Swat, Lower Chitral, Upper Chitral and some sites of Upper Dir were identified as having the highest potential for cold-water aquaculture.

- **Water Resources:** The zone is characterized by an abundance of streams and springs with good water quality suitable for trout.
- **Existing Aquaculture:** A significant number of existing trout farms were observed, indicating a growing interest and expertise in this sector.
- **Challenges:** Accessibility can be a challenge in some of the more remote areas, and the average proximity to markets is higher than in other zones.

3.2.2. Semi-Cold-Water Zone

The semi-cold-water zone, surveyed by Team B, is suitable for a variety of fish species, including both cold and warm-water species, depending on the specific location and water temperature. The key findings are:

- **High Potential Districts:** Mansehra, Mardan, and Abbottabad were identified as having high potential.
- **Water Resources:** The zone has a mix of springs, streams, and borewells, providing diverse water sources for aquaculture.
- **Infrastructure:** This zone generally has better road access and electricity availability compared to the cold-water zone.
- **Market Proximity:** The average proximity to markets is the lowest in this zone, which is a significant advantage for commercial aquaculture.

3.2.3. Warm Water Zone

The warm-water zone, surveyed by Team C, is ideal for the culture of carp and other warm-water species. The key findings include:

- **High Potential Districts:** DI Khan, Kohat, and Karak were identified as having high potential.
- **Water Resources:** The zone is characterized by dams, borewells, and canals, which can support large-scale aquaculture operations.
- **Existing Aquaculture:** A number of existing fish farms were observed, with a focus on carp species.
- **Challenges:** Water availability can be a constraint in some areas, and there is a need for improved post-harvest infrastructure.

3.3. Water Resources and Quality

The surveys confirmed that Khyber Pakhtunkhwa has abundant water resources suitable for aquaculture. The water quality parameters, including temperature, pH, dissolved oxygen, and conductivity, were generally within the acceptable range for the respective aquaculture types.

However, seasonal variations in water flow and potential pollution sources were identified as factors that need to be carefully managed.

3.4. Infrastructure and Market Access

Infrastructure and market access are critical for the commercialization of aquaculture. The surveys found that:

- **Road Access:** The majority of the surveyed sites have good road access, which is essential for transporting inputs and products.
- **Electricity:** Electricity is available at most sites, either from the grid or from alternative sources like solar and hydro.
- **Market Proximity:** Proximity to markets varies across the zones, with the semi-cold-water zone being the most well-connected.

3.5. Existing Aquaculture Practices and Socio-Economic Aspects

The surveys revealed a growing interest in aquaculture among the local communities. Key findings include:

- **Existing Farms:** A significant number of existing fish farms were surveyed, providing valuable insights into current practices and challenges.
- **Species Cultured:** A variety of species are being cultured, with trout being dominant in the cold-water zone and carps in the warm-water zone.
- **Community Perception:** The community perception of aquaculture is generally positive, with many people seeing it as a viable livelihood option.

4. CONCLUSION

The field surveys have successfully identified and assessed a large number of potential sites for aquaculture development in Khyber Pakhtunkhwa. The findings confirm that the province has significant potential for the sustainable expansion of aquaculture, which can contribute to economic growth, food security, and rural livelihoods. The data collected during the surveys will be used to develop a comprehensive commercialization strategy for cluster-based fish farming, which will guide the future development of the aquaculture sector in the province. The next steps will involve the spatial analysis of the collected data to delineate High Potential Zones (HPZs) and the development of business models for different aquaculture systems. Detailed observations of the field visit are given in annexures, attached.

ANNEXURES TO COMPREHENSIVE SURVEY REPORT

FIELD SURVEY PROTOCOL AND METHODOLOGY

1. Survey Approach

The field surveys were conducted following a comprehensive protocol that integrated:

- 1 Pre-Fieldwork Phase: Desk-based analysis, GIS-based pre-selection, and strategic site prioritization
- 2 During Fieldwork Phase: Ground-truthing, multi-method data collection, and adaptive sampling
- 3 Post-Fieldwork Phase: Data consolidation, spatial analysis, and HPZ delineation

2. Three-Tiered Priority System

Sites were classified using the following priority framework:

Priority Level	Criteria	Action
Priority 1 (Must Visit)	High suitability scores based on multi-criteria evaluation; strategic importance for cluster formation	Mandatory visitation
Priority 2 (Should Visit)	Moderate suitability scores; potential for development with improvements	Visitation if resources permit
Priority 3 (Opportunistic)	Low suitability scores; visited if encountered during field operations	Optional visitation

3. Multi-Criteria Suitability Assessment Framework

Each site was evaluated using the following weighted criteria:

Criterion	Weight (%)	Score Range	Justification
Water Quality	15	1-5	Based on field measurements against species requirements
Water Availability	15	1-5	Year-round flow and volume for planned scale
Temperature Suitability	10	1-5	Seasonal range enabling multi-species production
Topography	10	1-5	Slope suitable for gravity-fed systems

Soil Suitability	5	1-5	Soil type and stability for pond construction
Accessibility	10	1-5	Road access, distance to markets and inputs
Infrastructure	10	1-5	Electricity, communications, services
Market Proximity	10	1-5	Distance to key markets, demand level
Social Acceptance	5	1-5	Community interest, land tenure security
Environmental Sustainability	5	1-5	No major environmental constraints
Economic Viability	5	1-5	Production costs, market prices, profitability
TOTAL	100	Max 100	Suitability Rating: High/Medium/Low

ENUMERATOR SURVEY FORM

1. Form Structure and Components

The enumerator survey form consisted of eight main sections:

Section A: General Information

- Survey Type Selection
- Date Surveyed
- Time of Survey
- Enumerator Name
- Team/Zone Assignment
- Respondent Information (Name, Contact, Profession)
- Years of Experience in Aquaculture
- Training Status in Aquaculture

Section B: Site Identification and Location

- District
- Tehsil
- Locality/Village/Area
- Site ID
- GPS Coordinates (Latitude N, Longitude E)
- Altitude (meters)
- Land Use Type
- Accessibility Description
- General Notes

Section C: Water Resource Assessment

- Water Body Type (Stream, Dam, Spring, Borewell, Canal, River, Other)
- Water Resource Reliability
- Months of Water Availability
- Seasonal Variations Description
- Water Flow Recording (Yes/No)
- Water Flow Rate (m³/s)
- Potential Water Constraints
- Pollution Sources Identification
- Water Quality Parameters:

- Temperature (°C)
- pH
- Conductivity (μS/cm)
- Dissolved Oxygen (mg/L)
- Turbidity/Clarity (NTU)
- Alkalinity (mg/L CaCO₃)
- Hardness (mg/L CaCO₃)
- Salinity (for saline areas)
- Water Quality Notes

Section D: Infrastructure and Market Access

- Road Access Type
- Electricity Availability
- Proximity to Market (km)
- Proximity to Feed Suppliers (km)
- Proximity to Hatchery (km)
- Cold Chain Infrastructure Availability
- Proximity to Processing Facilities (km)

Section E: Existing Aquaculture Practices

- Existing Aquaculture Activity (Yes/No)
- Farm Type
- Aquaculture System Type
- Pond/Cage Type
- Total Farm Area (Kanal)
- Total Water Area (Kanal)
- Number of Ponds/Cages
- Average Pond/Cage Size
- Species Cultured
- Stocking Density (fish/m³)
- Feed Type Used
- Feeding Frequency (times/day)
- Average Production (kg/year)
- Major Diseases/Problems
- Extension Services Availability

Section F: Socio-Economic Profile

- Household Size
- Primary Livelihood Source
- Contribution of Aquaculture to Household Income (%)
- Land Ownership Status
- Access to Credit/Finance
- Community Perception of Aquaculture
- Gender Roles in Aquaculture
- Youth Roles in Aquaculture

Section G: Commercialization and Market

- Primary Market for Fish
- Mode of Transport to Market
- Post-Harvest Practices
- Market Challenges
- Interest in Value Addition

Section H: Market Survey

- Products Observed
- Price Range (PKR/kg)
- Presence of Wild-Caught Fish
- Percentage of Wild-Caught Fish
- Presence of Imported Fish
- Percentage of Imported Fish

2. Data Collection Tools and Equipment

The following tools and equipment were used during the field surveys:

Tool/Equipment	Purpose	Specifications
GPS Device	Location mapping and site coordinates	Accuracy ± 5 meters
Thermometer	Water temperature measurement	Range: -10°C to 50°C

pH Meter	pH measurement	Range: 0-14 pH units
DO Meter	Dissolved oxygen measurement	Range: 0-20 mg/L
Conductivity Meter	Electrical conductivity measurement	Range: 0-6000 $\mu\text{S}/\text{cm}$
Turbidity Meter	Water clarity measurement	Range: 0-4000 NTU
Alkalinity Test Kit	Alkalinity measurement	Results in mg/L CaCO_3
Hardness Test Kit	Water hardness measurement	Results in mg/L CaCO_3
Mobile Data Collection App	Digital data entry and storage	Cloud-based synchronization
Camera	Site photography and documentation	High-resolution images
Measuring Tape	Physical measurements	50-meter capacity
Notebook	Field notes and observations	Waterproof paper

TEAM COMPOSITION

1. Team A: Cold Water Zone

Team Lead: Mr. Khalid Mahmood, Manager Technical (Marine), FDB

Team Members:

- Mr. Sajjad Khan, Deputy Director, KP Fisheries
- Mr. Shakil Ahmed, Assistant Director, KP Fisheries

2. Team B: Semi-Cold Water Zone

Team Lead: Ms. Kanwal-Un-Nisa, Enumerator

Team Members:

- Mr. Nasir Khan, Enumerator
- Mr. Saddam Hussain, Enumerator

3. Team C: Warm Water Zone

Team Lead: Mr. Muneer Hussain, Consultant

Team Members:

- Mr. Muhammad Rehman, AD Orakzai, KPFD
- Mr. Shoukat Ali, AD Kohat, KPFD

SURVEY COVERAGE AND SITE DISTRIBUTION

1. Overall Survey Statistics

Total Sites Surveyed: 347

Geographic Coverage: 34 districts across Khyber Pakhtunkhwa

Survey Duration: October 13 - November 18, 2025 (37 days)

2. Distribution by Zone

Zone	Sites	Districts	Existing Farms	Priority 1 Sites	Priority 2 Sites	Priority 3 Sites
Cold Water	88	8	38	80	2	1
Semi-Cold Water	106	11	38	85	3	2
Warm Water	153	15	36	140	4	2
TOTAL	347	34	112	305	9	5

List of suitable Sites/Clusters

(9+4+23=34)

1. COLD-WATER ZONE

Suitable Sites/Clusters	Key Features
1. Upper and lower Chitral Districts	Pristine glacial water sources; Streams, rivulets and springs associated with Chitral River; Rainbow and Brown trout production; Tourism market integration; Excellent water quality (DO 8.0-9.8 mg/L); Premium market positioning; Remote location with seasonal accessibility
2. Kumrat-Patruk Valley	Panjkora River tributaries and Patruk Stream; Emerging pristine zone with minimal existing infrastructure; Rainbow and Brown trout; High-altitude alpine environment; Untapped production potential; Tourism synergy with Dir Upper; Limited Road access but improving
3. Upper Buner-Shangla Zone	Mountain streams and springs; Multi-species capability (Trout, Mahseer); Semi-alpine elevation (1,000-2,500m); Transitional characteristics; Government development focus; Moderate infrastructure; Agricultural integration potential
4. Kohistan-Pattan Corridor	Indus tributaries and Pattan and Palas Nullah; Strategic KKH location; High-altitude production (1,800-3,500m); Trout production; Seasonal accessibility; Remote but strategically positioned; Tourism and trade route access
5. Dir Lower	Panjkora River tributaries; Newly integrated district; Cold-water alpine conditions (10-18°C); Rainbow and Brown trout; Proximity to Swat tourism market; Low land cost; Emerging infrastructure; 100% expansion potential.
6. Malakand	Swat River tributaries and mountain springs; Excellent water quality (pristine sources); Optimal trout temperature range (8-16°C); High-value tourism market access; Government development initiatives; Emerging infrastructure; 1,500%+ expansion potential
7. Madyan-Mingora	Established cluster, strong farmer networks. Excellent infrastructure, strong market linkages to Mingora, experienced farmers.
8. Kalam Valley	Premium zone, high-value market. Pristine water quality, ideal for premium branding, direct access to tourist market.
9. Naran-Kaghan	Tourism hub, highest potential. Highest demand from tourism, premium pricing, established value chain.

2. SEMI-COLD-WATER ZONE

Suitable sites/clusters	Key Features
1. Paras-Balakot	Integrated hub, seasonal trout + year-round carp. Proven multi-species model, strategic location on tourism route. Prone to flash floods, requires careful site selection.
2. Siran Valley	Multi-species production, carp/mahseer focus. Abundant water resources, suitable for large-scale pond culture. Infrastructure development needed to improve market access.
3. Havelian-Abbottabad	Urban market proximity, pond-based systems. Proximity to Abbottabad and Havelian markets, CPEC route access. Increasing urban pollution, competition for water resources.
4. Battagram	New development zone, mountain streams. Good water quality, potential for community-based aquaculture. Limited infrastructure, requires technical capacity building.

3. WARM-WATER ZONE (with some Semi-Cold-Water Areas)

Suitable sites/clusters	Key Features
1. Sherabad	Government hatchery, carp/tilapia/catfish, established technical expertise.
2. Charsadda	Largest producer, canal-fed, excellent infrastructure. Extensive canal network provides reliable water, established farming community.
3. Nowshera-Pabbi	Strategic corridor, highest production potential. Strategic location on GT road, proximity to Peshawar and Rawalpindi markets.
4. Azakhel Dam	Dam-based, emerging development. Availability of a dedicated water body (dam), proximity to Peshawar.
5. Mardan	Emerging Agricultural Integration Zone. Farmer cooperatives, good access to local markets, availability of agricultural by-products for feed.
6. Swabi	Emerging Agricultural Integration Zone. Reliable water from irrigation systems, proximity to the motorway for market access.
7. Haripur Pond Belt	High production pond farming. Use of advanced technologies (biofloc), high productivity, proximity to major markets.
8. Tarbela Dam Reservoir	Massive water resource. Massive water body allows for huge expansion, ideal for cage culture.
9. Khanpur Dam Reservoir	Huge water resource. Proximity to Islamabad, popular recreational fishing spot.
10. Tanda Dam & Multiple Dams, Kohat	Dam-based, and pond systems. High productivity indicated by high lease values, established market channels.

11. Karak	Dam-based, and pond systems. Availability of multiple dams, potential for community-based management.
12. Hangu Semi-Cold Transitional Zone	Mountain streams, springs. Limited aquaculture activity.
13. DI Khan	Canal-fed, proven infrastructure, market access. Largest warm-water production zone in KP. Extensive irrigation infrastructure (CRBC Canal system). Established farming communities with aquaculture experience. Year-round warm water conditions. Good market access to major urban centers. Government support and policy framework. Farmer associations and cooperatives. Proven production systems. Significant land availability for expansion
14. Bannu	Agricultural integration, emerging production. Baran Dam development will increase water availability significantly. Warm climate suitable for carp and tilapia. Emerging aquaculture sector with growth potential. Agricultural integration potential. Potential for cooperative development. Lower land costs compared to established zones.
15. Khyber Agency	Emerging production, community-based systems. Current Production, minimal.
16. Mohmand Agency	Semi-cold transition, mountain streams. Current Production, minimal.
17. Orakzai Semi-Cold Emerging Zone	Semi-cold transition, mountain streams. Current Production, minimal.
18. Bajaur Agency	Warm-water development, canal potential. Current Production, minimal.
19. Kurram Semi-Cold Emerging Zone	Semi-cold transition, mountain streams. Current Production, minimal.
20. North Waziristan	New development zone, emerging infrastructure. Current Production, minimal.
21. South Waziristan	New development zone, emerging infrastructure. Current Production, minimal.
22. Lakki Marwat	Emerging production, canal potential. Emerging development potential
23. Tank	Agricultural integration, mountain streams. Emerging development potential.

PICTORIAL OVERVIEW OF THE FIELD SURVEY

Cold water areas field visit:



Figure 1: Elsia Fish Farm Bombraite Lower Chitral



Figure 2: Ghanaamaraga Stream Swat



Figure 3: Baboozai Fish Market Swat

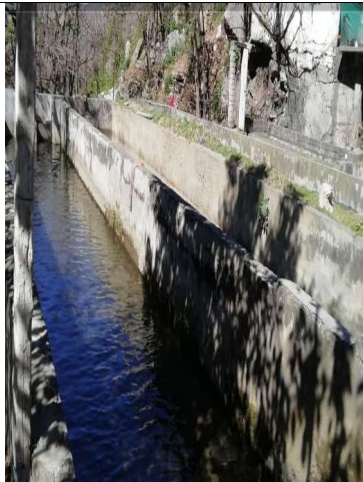


Figure 4: Shrief Ulluh Fish Farm Beshband Swat



Figure 5: Piya Stream Bahrain Swa

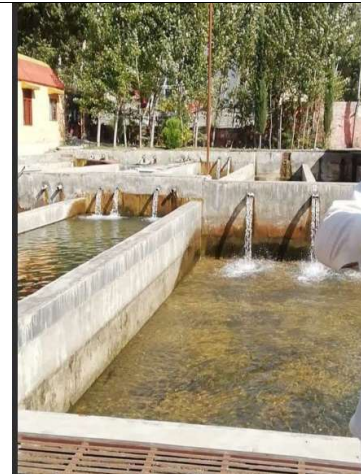


Figure 6 : Fazal Karim Farm, Bahrain Swat

Semi-Cold Water Areas field visit:

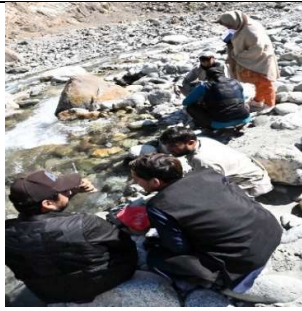


Figure 7: Dubair Stream, Lower Kohistan



Figure 8: Katlang Chichar Canal, Mardan



Figure 9: Fish market, Abbottabad



Figure 70: Kabul River, Nowshera









Figure 11: Kundal Dam, Swabi



Figure 82: Khan pur Dam, Haripur

Warm water areas field visit:

 <p>Figure 13: Usman Fish Farm D.I Khan</p>	 <p>Figure 14: Sharki Dam, Karak</p>	 <p>Figure 15: Draban Drain, D.I Khan</p>
 <p>Figure 96: Sahbqadar Fish Market, Mohmand</p>	 <p>Figure 107: Govt. Rutta Kulachi Carp Hatchery D.I Khan</p>	 <p>Figure 18: River Indus Khushal Garh Kohat</p>

ANNEXURE-7:

Field observation data: Cold Water Zone Sites

Cold Water Zone Sites														Avg.	
Site ID	District	Tehsil	Locality / V	Latitude (N)	Longitude	Water body	Temperature	pH	Conductivity	Dissolved	Accessibility	Road Access	Electricity	Existing Aq Species	Ct. Prod. (kg/yr)
col-Swa-1: Swat	Babozai	Bishband,	34.79453	72.5187	other	13.5	8	190	6.7	moderate	acc_dirt	grid	yes	rainbow	6000
col-Swa-1: Swat	Babozai	Bishband	34.7989	72.51524	stream	11	7.6	200	7.3	easy	acc_road	grid			
col-Swa-1: Swat	Charbagh	Ghanamma	34.81673	72.52873	stream	14	8	250	7	easy	acc_road	grid			
col-Swa-2: Swat	Babozai	Mingora	34.77245	72.36163						easy					
col-Swa-1: Swat	Kabal	Kanju	34.80353	72.34373						easy					
col-Swa-1: Swat	Babozai	Mangawar	34.81338	72.4461						easy					
col-Swa-1: Swat	Bahrain	Kulakarai	35.05996	72.53183	stream	15	8	150	6.9	easy	acc_road	grid	yes	rainbow	2000
col-Swa-1: Swat	Bahrain	Madyan	35.14075	72.54845	other	14.5	8	70	6.4	easy	acc_road	grid,gener	yes	rainbow	10000
col-Swa-1: Swat	Bahrain	Madyan	35.14092	72.54803	other	14	8	70	6	easy	acc_road	grid	yes	rainbow	2000
col-Swa-1: Swat	Bahrain	Madyan	35.14177	72.54929	stream	14	7.9	70	6	difficult	acc_foot	grid,gener	yes	rainbow	1000
col-Swa-1: Swat	Bahrain	Cheel Bad	35.14289	72.55619	other	14.2	7.9	72	6.7	difficult	acc_foot	grid	yes	rainbow	10000
col-Swa-1: Swat	Bahrain	Piya,	35.10781	72.51532	other	13.5	7.5	325	6.8	easy	acc_road	grid			
col-Swa-1: Swat	Bahrain	Tirat	35.11982	72.50172	other	13.5	7.81	225	6.2	easy	acc_road	grid	yes	rainbow	4000
col-Swa-2: Swat	Matta	Hussainab	35.0758	72.45795	stream	16	8	170	6.5	easy	acc_road	grid			
col-Swa-2: Swat	Matta	Koz laiko			other	16.8	8	120	5.8	easy	acc_road	grid	yes	rainbow	3000
col-Swa-2: Swat	Matta	Bar Lalko			stream	14.5	8	170	6.8	easy	acc_road	grid			
col-Swa-2: Swat	Matta	Bar Lalko			other	14	8	175	6	easy	acc_road	grid	yes	rainbow	40000
col-Swa-2: Swat	Matta	Gabin Jaba top			other	12	8	155	6.1	moderate	acc_dirt	none			
col-Swa-1: Swat	Matta	Rordingar			stream	15	8	100	9	easy	acc_road	grid,gener	yes	rainbow	1500
col-Swa-1: Swat	Matta	Charma			other	13.8	7.7	70	7.8	difficult	acc_foot	grid	yes	rainbow	1200
col-Swa-1: Swat	Matta	Solatan			other	13.8	7.8	82	7.1	moderate	acc_dirt	grid	yes	rainbow	
col-Swa-1: Swat	Matta	Nargat, Biha			other	14	8	105	6.5	easy	acc_road	grid	yes	rainbow,br	2000
col-Swa-1: Swat	Bahrain	Matilhan			other	14	8	210	7.5	easy	acc_road	hydro			
col-Swa-1: Swat	Bahrain	Gulshanabad utror			other	13.8	8	170	6.2	easy	acc_dirt	grid	yes	rainbow	0
col-Swa-1: Swat	Bahrain	Kogunal, Kalam			other	13.8	8	210	6.2	moderate	acc_dirt	grid	yes	rainbow	1000
col-Swa-1: Swat	Bahrain	Kalam			stream	9.4	8	30	7	moderate	acc_dirt	grid			
col-Swa-1: Swat	Bahrain	Gahill			stream	14.3	8	30	6.8	moderate	acc_dirt	grid	yes	rainbow	800
col-Swa-1: Swat	Bahrain	Laikot			stream	11	7.8	50	6.8	moderate	acc_dirt	grid			
col-Swa-2: Swat	Bahrain	Monkoyal			stream	13	8	120	7	moderate	acc_dirt	grid			
col-Swa-2: Swat	Bahrain	Satal			stream	14	7.95	85	6.8	difficult	acc_foot	grid			
col-Swa-2: Swat	Bahrain	Kuzagari			stream	14	7.95	90	6.2	difficult	acc_foot	grid	yes	rainbow	200
col-Sha-2: Shangla	Alpuri	Alpuri			other	16.8	8	180	9	easy	acc_road	grid	yes	rainbow	0
col-Sha-2: Shangla	Alpuri	Lilownai	34.94589	72.63769	stream	16.9	8	180	9	easy	acc_road	grid			
col-Sha-2: Shangla	Alpuri	Barkana			stream	14.8	8	180	7	moderate	acc_dirt	grid			
col-Bun-1: Buner	Chagharza	Battarha	34.535	72.63915	stream	22.1	8	360	8	easy	acc_road	grid			
col-Bun-1: Buner	Gagra	Mahwani	34.48215	72.61101	other	21.8	7.9	450	5	easy	acc_road	solar	yes	grass,rohu	1000
col-Bun-1: Buner	Gagra	Falang bajl	34.47233	72.573	spring	22	7.9	450	4		acc_road	solar	yes	rohu,gulfar	2500
col-Mai-2: Matakand	Dargal	Sakhakot	34.47902	71.90624	stream	22.4	8	420	5.2	easy	acc_road				
col-Mai-2: Matakand	Battihela	Totakan			river	21.5	8	450	7		acc_road	grid			
col-Low-2: Lower Dir	Chakdara	Fishing Hul	34.64852	72.03198	stream	24.1	8	600	6	moderate	acc_road	grid			
col-Low-2: Lower Dir	Chakdara	Bahwan chowk								easy					
col-Low-2: Lower Dir	Adeznai	Kashmir	34.79441	72.149	spring	20	8	430	5.3	difficult	acc_foot	grid	yes	rohu,silver	2000
col-Di-1: Dir Lower	Temergara	Saddo shekwalli			other	20.9	8	280	5.8	moderate	acc_dirt	grid	yes	rohu,mriga	1000
col-Low-1: Lower Diru	Batambat	Odigram	34.87692	71.8695	stream	21.2	8	390	9	moderate	acc_dirt	grid			
col-Low-1: Lower Dir	Khal	Rabat			spring	21	8	430	6	easy	acc_road	grid	yes	rohu,grass	2000
col-Chi-21 Chitral	Chitral	Jugoor golc	35.82281	71.78633	stream	11.7	8	220	9	easy	acc_road	grid	yes	rainbow	500
col-Chi-21 Chitral	Chitral	Jugoor gulc	35.82301	71.78685	stream	12.2	8	220	9	easy	acc_road				
col-Chi-22 Chitral	Drosh	Gureen lus	35.82336	71.87701	stream	14.6	8	220	8	difficult	acc_dirt	hydro	yes	rainbow	400
col-Chi-23 Chitral	Drosh	Gureen lusht stream			stream	10	8	250	9	difficult	acc_dirt	hydro			
col-Chi-22 Chitral	Drosh	Shishikoh stream at fursat purtgo			stream	11.5	8	250	9	difficult	acc_dirt	grid			
col-Chi-21 Chitral	Chitral	Bomboraite			stream	11	7.91	190	8.2	difficult	acc_dirt	grid	yes	rainbow,br	0
col-Low-2: Lower Chit	Chitral	Bomboraite			spring	11.5	7.41	260	7.2	moderate	acc_dirt	grid	yes	rainbow,br	100
col-Low-2: Lower Chit	Chitral	Sheikhand	35.68335	71.64968	spring	13.5	8	250	8	difficult	acc_dirt	grid	yes	rainbow	1000
col-Chi-21 Chitral	Chitral	Batreek Bu	35.69496	71.67788	spring	12.3	7.71	210	8	difficult	acc_dirt	hydro	yes	rainbow,br	1000
col-Low-2: Lower Chit	Chitral	Bomboraite			stream	11	7.9	230	8.7	moderate	acc_dirt	grid			
col-Low-2: Lower Chit	Chitral	Rumbor			stream	11.5	7.8	230	8.6	moderate	acc_dirt	hydro			
col-Low-2: Lower Chit	Chitral	Ayun			stream	12.3	8	230	8	easy	acc_road	grid			
col-Low-2: Lower Chit	Chitral	Jaghoor, Cl	35.8186	71.77253	other	10.4	8	230	7	easy	acc_road	grid	yes	rainbow	1000
col-Chi-20 Chitral	Chitral	Jaghoor Sh	35.81977	71.77072	stream	13	7.92	415	6	moderate	acc_foot	grid	yes	rainbow,gs	1500
col-Chi-20 Chitral	Chitral	Mogh	36.00949	71.64768	spring	8.9	7.8	190	8.3	easy	acc_road	hydro	yes	rainbow	0
col-Low-2: Lower Chit	Chitral	Mogh			stream	11	7.9	210	9	easy	acc_road				
col-Low-2: Lower Chit	Chitral	Mogh			other	10	7.8	130	7.8	easy	acc_road	hydro	yes	rainbow	800
col-Low-2: Lower Chit	Chitral	Baka, Golein			stream	10.2	7.8	230	9.8	moderate	acc_dirt	grid,hydro			
col-Low-2: Lower Chit	Chitral	Izghor Golein			other	8.8	7.91	250	8.5	moderate	acc_dirt	grid,hydro	yes	rainbow,br	2000
col-Low-2: Lower Chit	Chitral	Izghor, Golein			spring	8.1	7.8	260	9	moderate	acc_dirt	grid,hydro			
col-Up-1: Upper Chit	Mustuj	Sarghooz, Mastuj			other	9	7.93	210	8.7	moderate	acc_dirt	hydro			
col-Up-1: Upper Chit	Mustuj	Mustuj			other	9	7.9	230	8.9	moderate	acc_dirt	hydro			
col-Up-1: Upper Chit	Mustuj	Laspur Stream at Sor Laspur			other	8.6	7.4	130	9.5	moderate	acc_dirt	hydro			

col-Upp-1; Upper Chit Mustuj	Miragram No. 1		stream	9.6	7.89	260	9 moderate	acc_dirt	hydro				
col-Upp-1; Upper Chit Mustuj	Harchin Laspur		other	97	7.95	430	8.3 moderate	acc_dirt	hydro	yes	rainbow,br	300	
col-Upp-1; Upper Chit Mustuj	Yukum, Yarkhoon		other	6.2	8	470	9 moderate	acc_dirt	hydro				
col-Upp-1; Upper Chit Mustuj	Ditzg, Yarkhoon		spring	11.5	7.71	910	8.8 moderate	acc_dirt	hydro				
col-Upp-1; Upper Chit Mustuj	Sonoghur Area		other	9.5	7.9	295	9 moderate	acc_dirt	hydro				
col-Dir-12; Dir Upper	Kalkot		stream	14.6	7.84	130	7 moderate	acc_dirt	hydro		rainbow	0	
col-Upp-1; Upper Dir	UC Kalkot	35.41562	72.17504	stream	13.5	7.92	160	7.3 moderate	acc_dirt	grid,hydro			
col-Upp-1; Upper Dir	Shringal		river	12.1	7.78	140	7.5 moderate	acc_dirt	hydro	yes	rainbow	0	
col-Upp-1; Upper Dir	Saloot LACASA Resorts		stream	12	8	140	7 moderate	acc_dirt	grid				
col-Upp-1; Upper Dir	Larjan		stream	12	8	140	7 moderate	acc_dirt	grid				
col-Upp-1; Upper Dir	Barawal		spring	12	7.88	220	8 moderate	acc_dirt	hydro				
col-Upp-1; Upper DIR	Larjam		stream	6	7.71	80	9 moderate	acc_dirt	hydro				
col-Upp-1; Upper DIR	Garkoi		stream	6	7.71	80	9 moderate	acc_dirt	hydro				
col-Kur-15 Kurram	Parachinar	Datl	33.823	70.154	spring	16	6.53	220	10 moderate	acc_dirt	none		
col-Kur-11 Kurram	Parachinar	Shalozan	33.957	70.022	stream	12	6.58	220	11 easy	acc_road	none,grid		
col-Kur-12 Kurram	Parachinar	Malana	33.962	70.089	stream	11	6.42	220	11.5 easy	acc_road	grid		
col-Kur-14 Kurram	Parachinar	Zeran masi	33.941	70.124	stream	11	6.41	220	12 difficult	acc_foot	grid		
col-Kur-15 Kurram	Parachinar	Shublan ta	33.821	70.164	spring	15	6.53	220	9.5 easy	acc_road	solar	yes	
col-Swa-1; Swat	Bahrain	Dhamaka lake		river	6	7.7	70	9 moderate	acc_dirt	grid	yes	rainbow	1000
col-Swa-1; Swat	Bahrain	Surrounding of kharkhary lake		river	5.6	6.6	70	9.5 moderate	acc_dirt	hydro		Trout	
col-Swa-1; Swat	Bahrain	Gujjar Gabral		river	7.6	7.3	70	8 moderate	acc_dirt	hydro			
col-Swa-1; Swat	Bahrain	Shahi bagh lake		river	4	7	50	10.5 moderate	acc_dirt	generator			
col-Swa-1; Swat	Bahrain	Blue water lake		river	7	7.2	60	7 moderate	acc_dirt	grid			
col-Swa-1; Swat	Bahrain	Tangy banda		stream	6.6	7	70	8 difficult	acc_dirt	hydro			
col-Swa-1; Swat	Bahrain	Beshigram		stream	7	7	70	8 moderate	acc_dirt	hydro			

Field observation data: Semi-Cold Water Zone Sites

Semi Cold Water Zone Sites																
Site ID	District	Tehsil	Locality / V	Latitude (N)	Longitude	Water bod	Temperatu	pH	Conductivi	Dissolved	Accessibili	Road Acce	Electricity	Existing Aq	Species C	Avg Prod. (k
sem-Har-1	Haripur	Haripur	Changi Bar	33.99406	73.03373	spring	24	7.73	590	4	moderate	acc_dirt	none	yes	rohu,mash	4000
sem-Har-1	Haripur	Haripur	Bagra	33.97957	73.07422	stream	24.7	7.87	386	7.3	easy	acc_road	none			
sem-Abb-1	Abbottaba	Havelian	Kanyala	33.93634	73.15769	stream	18.8	7.73	449	6.9	easy	acc_road	none			
sem-Har-1	Haripur	Haripur	Jabri	33.89523	73.16022	river	21.2	7.7965	441	6.5	easy	acc_road	none			
sem-Har-1	Haripur	Haripur	Kamal Pur	33.78786	72.94902	stream	24.4	7.72	536	6.5	easy	acc_road	grid			
sem-Har-1	Haripur	Khanpur	Khanpur D	33.8164	72.92172	other	25.1	7.99	405	6.5	easy	acc_road	grid			
sem-Har-1	Haripur	Haripur	Samla Nag	34.04765	72.97343	borewell	20	7	494	7.8	moderate	acc_road	grid,solar			
sem-Har-1	Haripur	Haripur	Jhatti Pind			borewell	23.5	7.13	494	7.5	moderate	acc_road	grid			
sem-Swa-1	Swat	Barikot	Nagoha Fi	34.69639	72.19866	spring	19	7.9	450	7.2	easy	acc_road	grid	no	masheer,thaila,grass	
sem-Swa-1	Swat	Barikot	Nagoha	34.69708	72.19828	spring	18	7.7	400	6.7		acc_road	grid			
sem-Abb-1	Abbottaba	Havelian	Wazeeran			river	23.3	8	434	8.4	easy					
sem-Abb-1	Abbottaba	Havelian	Lagra			other	24.4	7.5	306	8.1	easy	acc_road	grid	yes	masheer,g	500
sem-Abb-1	Abbottaba	Havelian	Malkan			river	23.5	8	438	8.5	easy	acc_road	hydro,generator			
sem-Abb-1	Abbottaba	Lower Tan	Ratiyan			spring		7	0	0	difficult	acc_road	grid			
sem-Abb-1	Abbottaba	Abbottaba	Main Bazar			Abbottabad					easy					
sem-Abb-1	Abbottaba	Abbottaba	Namli Maira			spring	12.6	7.3	178	9.6	easy	acc_dirt	grid	no	rainbow	
sem-Abb-1	Abbottaba	Abbottaba	Karlan			stream	16.5	7.68	359	10	moderate	acc_dirt	grid			
sem-Abb-1	Abbottaba	Abbottaba	Bara Hotar			spring	22	7.93	432	8.9	easy	acc_road	grid	yes	rohu,grass	2500
sem-Abb-1	Abbottaba	Abbottaba	Hotar Kasi			spring	17.5	7.9	336	9.5	difficult	acc_dirt	solar	yes	rainbow	500
sem-Man-1	Mansehra	Balakot	Khaniyan			spring	11	7.7	387	11	easy	acc_road	grid	yes	rainbow	2700
sem-Man-1	Mansehra	Balakot	Lohar Banda			stream	13	7.86	274	11.8	easy	acc_road	grid	yes	rainbow,br	1000
sem-Man-1	Mansehra	Balakot	Jared Ochri			stream	10.5	7.89	511	10.4	moderate	acc_dirt	grid	yes	rainbow,br	20000
sem-Man-1	Mansehra	Balakot	Bhoonja Kafar Kasi			spring	10.5	7.85	304	11.5	easy	acc_road	grid	yes	rainbow,br	18000
sem-Man-1	Mansehra	Balakot	Fareed Abad			stream	10.6	7.6	219	11.5	easy	acc_road	hydro	yes	rainbow	5000
sem-Man-1	Mansehra	Balakot	Kiwal			spring	109	7.75	220	118	moderate	acc_dirt	grid	yes	rainbow	4000
sem-Man-1	Mansehra	Balakot	Ghanool Valley			stream	14	8	356	11.5	moderate	acc_dirt	grid			
sem-Man-1	Mansehra	Baffa	Salar Bagh			river	23	8	398	12.5	easy	acc_road	grid	yes	grass,rohu	24000
sem-Man-1	Mansehra	Baffa	Pakh Jabori			river	18.9	8	199	10.5		acc_road	grid			
sem-Man-1	Mansehra	Baffa	Domail			river	14.5	7.6	142	10.3	easy	acc_road	grid	yes	rainbow	2000
sem-Man-1	Mansehra	Baffa	Sachan Banda			spring	14.4	7.62	170	10.8	moderate	acc_road	grid			
sem-Bar-1	Battagram	Battagram	Shumlai Hill			stream	12.4	7.2	74	11	moderate	acc_dirt	grid			
sem-Bar-1	Battagram	Battagram	Jesol			river	16.7	8	100	9	easy					
sem-Bar-2	Battagram	Allai	Rashang			stream	12.3	7.7	174	11.8	difficult	acc_dirt	hydro	yes	rainbow,br	100
sem-Koh-1	Kohistan	L. Bankhar R	Sholgra			stream	17.7	7.8	219	9.5	easy	acc_road	grid,hydro			
sem-Koh-1	Kohistan	L. Bankhar R	Dubair			stream	13.7	7.27	89	11	moderate	acc_dirt	grid,hydro			
sem-Koh-1	Kohistan	L. Pattan	Chawadara			stream	13.2	6.75	160	10.8		acc_dirt	grid			
sem-Koh-1	Kohistan	U Dassu	Goshali			stream	12	7.1	69	12.4	moderate	acc_dirt	grid,hydro			
sem-Kol-1	Kolai Palas	Palas	Shariyal Stream			stream	10.9	7.13	54	12.7	difficult	acc_dirt	hydro			
sem-Kol-1	Kolai Palas	Palas	Beta Gadar Haran Bridge			stream	8.5	7.52	109	13.3		acc_dirt	hydro,solar			
sem-Kol-1	Kolai Palas	Palas	Marhu U...U'U'			stream	10.58	7.18	36	12	moderate	acc_dirt	hydro,solar			
sem-Mal-1	Malakand	THANABAZ	Thana	34.64452	72.04875	stream	16.7	8	210	5.56	easy	acc_road	grid,solar	yes	masheer	1000
sem-Swa-1	Swabi	Swabi	Panjanm			borewell	23.2	7.8	845	9.1	easy	acc_road	solar	yes	silver,grass	3500
sem-Swa-1	Swabi	Swabi	Kundal Dam			dam	24	8	220	6.4	easy	acc_road	grid			
sem-Swa-1	Swabi	Topi	Maini (Shakrai)			other	21.9	7.7	229	8.3	easy	acc_dirt	grid,solar	yes	rohu,mrige	10000
sem-Swa-1	Swabi	Swabi	Marghuz			borewell	23	7.37	566	7.2	easy	acc_road	grid,solar	yes	grass,rohu	300
sem-Swa-1	Swabi	Razzar	Asota Sharif Mohallah Sabirabad			borewell	23.4	8	168	7.8	easy		grid	yes	rohu,mrige	3200
sem-Swa-1	Swabi	Razzar	Kalu Khan			borewell	24	8	386	9.4	easy	acc_dirt	grid	yes	gulfam,ma	4000
sem-Mar-1	Mardan	Mardan	Charbanda Hatchery			borewell	22.6	7.33	929	5.7	easy	acc_road	grid	yes	grass,gulfe	400000
sem-Mar-1	Mardan	Takhtbai	Miangano Kaley			borewell	22.3	8	272	6.5	easy	acc_road	grid	yes	rohu,mrige	3200
sem-Mar-1	Mardan	Katlang	Katti Ghari			other	22.8	7.9	225	6.1	easy	acc_road	grid	yes	rohu,mrige	8000
sem-Mar-1	Mardan	Takht Bhai	Sara Shah			canal	21.3	7.92	474	9	easy	acc_dirt	grid			
sem-Mar-1	Mardan	Takht Bhai	Umarabad			borewell	23.3	8	521	10	easy	acc_road	grid			
sem-Mar-1	Mardan	Rustam	Mir Bahadar Khan Banda			borewell	21.5	7.66	391	7	moderate	acc_road	grid,solar			
sem-Mar-1	Mardan	Rustam	Chargulli			borewell	22.2	8	180	11	easy	acc_road	grid			
sem-Mar-1	Mardan	Rustam	Kamar Gai			borewell	22.6	8	390	7	easy	acc_road	grid	yes	rohu,grass	3000
sem-Mar-1	Mardan	Toru	Sheikh Maltoon			borewell	23.5	8	1042	7.7	easy	acc_road	grid,solar	yes	rohu,mrige	3750
sem-Mar-1	Mardan	Mardan	Taru Maira			borewell	23.2	8	391	7.4	easy	acc_road	grid,solar	yes	rohu,mrige	3000
sem-Cha-1	Charsadd	Charsadd	Nisatta Patwari Kaley			canal	23	7.21	360	7.2	easy	acc_road	grid	yes	rohu,grass	120
sem-Cha-1	Charsadd	Charsadd	Azizabad Nisatta			borewell	25	8	753	7.8	easy	acc_road	grid,solar	yes	rohu,grass	16000
sem-Cha-1	Charsadd	Charsadd	Shabra			borewell	25.3	7.96	358	5.6	easy	acc_dirt	solar	yes	rohu,mrige	4800
sem-Cha-1	Charsadd	Charsadd	Ternab			borewell	22.4	8	271	6.1	moderate	acc_road	solar	yes	rohu,mrige	1200
sem-Mar-1	Mardan	Katlang	Katlang Chichar			canal	20.5	8	186	9.5	easy	acc_road	grid			
sem-Cha-1	Charsadd	Charsadd	Nisatta	34.136	71.18	borewell	26	7.65	350	190	easy	acc_road	solar	yes	rohu,mrige	2000
sem-Cha-1	Charsadd	Charsadd	Nisatta	34.21	71.8	borewell	26	7.28	380	8	easy	acc_road	solar	yes	gulfam,gra	6000
sem-Mar-1	Mardan	Katlang	Katti Garhi			canal	22.9	8	218	9.5	easy	acc_road	grid			
sem-Mar-1	Mardan	Katlang	Katti Garhi Jalal Shah Fish Farm			canal	20	7.2	273	7.4	easy	acc_road	grid	yes	rohu,silver	70000
sem-Mar-1	Mardan	Katlang	Katti Ghari			canal	22	8	185	8.3	easy	acc_road	grid	yes	rohu,mrige	4000
sem-Mar-1	Mardan	Katlang	Katti Ghari Malik Irfan Fish Farm			canal	22	8	185	8.3	easy	acc_road	grid	yes	rohu,mrige	4000
sem-Mar-1	Mardan	Katlang	Malosha			spring	21.8	7.44	346	7.2	easy	acc_road	grid			
sem-Pes-1	Peshawar	Peshawar	Dalazak			spring	22.2	8	740	7.2	easy	acc_road	solar	yes	rohu,grass	2500
sem-Pes-1	Peshawar	Akbarpura	Jabba Daudzai			spring	16.4	7.47	811	6.6	easy	acc_road	grid			

sem-Pes-1 Peshawar	Akbarpura	Naguman River	river	21.1	7.47	557	7.3	easy	acc_dirt	grid			
sem-Pes-1 Peshawar	Terae Paya	Akbar Khan Kilah	spring	23.8	7.52	681	8.1	easy	acc_road	grid	yes	grass	4000
sem-Pes-1 Peshawar	Mathra	Chaghar Matti	canal	19.7	7.79	342	9.2	easy	acc_road	grid			
sem-Pes-1 Peshawar	Mathra	Haryan Garh	canal	19.4	7.83	349	9.1	easy	acc_road	grid			
sem-Pes-1 Peshawar	Mathra	Shahi Bala Fish Farm	spring	24.1	8	556	10.1	easy	acc_dirt	solar	yes	rohu,grass	10000
sem-Pes-1 Peshawar	Mathra	Kabul River Canal	canal	19.3	7.69	329	8.7	easy	acc_road	grid			
sem-Naw- Nawshera	Pabbi	Village Qasim	other	21.6	7.97	375	8.8	easy	acc_road	grid	yes	grass,silve	7000
sem-Now- Nowshera	Pabbi	Jalozai Dam	dam	21	7.75	749	7.2	easy	acc_road	solar			
sem-Now- Nowshera	Akbarpura	Garhi Momin	spring	21	8	950	8.2	easy	acc_road	grid			
sem-Kur-1 Kurram	Parachinar	Aka khel	33.809 70.151	spring	13	6.5	220	9	easy	acc_road	none		
sem-Too-1 Torghar	Kandar has	Chund	canal	18	6.93	0	0	easy	acc_road	solar			
sem-Tor-1 Torghar	Kandar has	Chund	canal	18	6.96	0	0	easy	acc_road	solar			
sem-Man- Mansehra	Balakot	Naran	stream	-5	6.9	0	0	moderate	acc_dirt	grid			
sem-Tor-1 Torghar	Khandar hi	Mera mada khil	1	spring	20	6.62	20	6.3	easy	acc_none	grid	no	rohu,thaila
sem-Tor-1 Torghar	Dourmaira	Mangri	dam	16	6.9	0	0	easy	acc_dirt	hydro			
sem-Man- Mansehra	Balakot	Batakundi nalla	stream	-5	6.97	0	0	easy	acc_road	hydro			
sem-Tor-1 Torghar	Khandar hi	Chound m.	0	6.62	spring	20	6.62	0	0	difficult	acc_foot	none	
sem-Tor-1 Torghar	Dourmaira	Mangri	canal	16	6.94	0	0	moderate	acc_dirt	hydro			
sem-Man- Mansehra	Oghi	Unhar River Dogai	stream	16	6.5	0	0	easy	acc_road	grid			
sem-Tor-1 Torghar	Khandar hi	Chound	0	0	spring	20	6.55	0	0	difficult	acc_foot	none	
sem-Man- Mansehra	Oghi	Bandi parha	stream	15	6.5	0	0	easy	acc_road	grid			
sem-Man- Mansehra	Oghi	Darband	river	25	6.5	0	0	easy	acc_road	grid			
sem-Man- Mansehra	Balakot	Naran (Chapra)	spring	8	6.9	249	6	difficult	acc_dirt	grid			
sem-Man- Mansehra	Balakot	Lulusar Lake	stream	8	6.69	0	6		acc_road	none			
sem-Upp- Upper kohi	Harban ba	Sazin gah nala	spring	9	6.94	0	5.4	moderate	acc_foot	none			
sem-Upp- Upper kohi	Dasu	Uchar nala/strea/Dasu nala	spring	13	7.09	0	0	moderate	acc_dirt	none			
sem-Upp- Upper kohi	Kondia	Kondia river	river	12	7.02	0	0	easy	acc_foot	none			
sem-Upp- Upper Koh	Kondia	Kondia Nala	spring	12	7.09	0	0	difficult	acc_dirt	none			
sem-Man- Mansehra	Oghi	Belian Dewal Oghi	stream	15	6.75	0	0	easy	acc_road	grid			

ANNEXURE-9:

Field observation data: Warm Water Zone Sites

Site ID	District	Tehsil	Locality / V	Latitude (°)	Longitude	Water bod	Temperatu	pH	Conductivi	Dissolved	Accessibili	Road Acce	Electricity	Existing Aq	Species Cl	Arg Prod./k
war-Baj-1E	Bajaur	Salarzai	Gabar spri	34.91432	71.502	spring	15.9	6.5	210	10.8	easy	acc_road	solar			
war-Baj-1J	Bajaur	Khar	Raghagan	34.78857	71.57997	dam	22.1	7.8	340	7.9	easy	acc_road	solar			
war-Baj-0E	Bajaur	Salarzai	Talay	34.77425	71.58897	dam	18.6	8	210	6.5	easy	acc_road	solar			
war-Baj-1C	Bajaur	Khar	Haji Lawar	34.76074	71.5714	stream	17.5	8	460	12	easy	acc_road	solar			
war-Baj-1C	Bajaur	Khar	Kabari Mar	34.73532	71.52503						easy					
war-Moh-1	Mohmand	Yaka Ghun	Shah Alam	34.21564	71.4454	canal	23.2	7.7	600	4	easy	acc_road	grid	yes	rohu,thaila	450
war-Moh-1	Mohmand	Ekka Ghun	Musal kor	34.22199	71.44074	canal	19.7	8	370	7.9	easy	acc_road	grid,solar			
war-Moh-1	Mohmand	Upar Mohr	Abazai	34.331	71.571	canal	18.9	7.9	150	8.1	easy	acc_road	grid			
war-Moh-1	Mohmand	Upar Mohr	Mohmand	34.319	71.575	canal	18.9	7.8	290	8.9	easy	acc_road	grid			
war-Moh-1	Mohmand	Sahabqadi	Shabqadar	34.222	71.567						easy					
war-Moh-1	Mohmand	Ekka Ghun	Shermakh	34.26	71.467	dam	23.8	7	430	4	easy	acc_road	solar,grid			
war-Moh-1	Mohmand	Ekka Ghun	Ekka Ghun	34.24	71.5	canal	23.3	8	350	7.5	easy	acc_road	grid	yes	rohu,mrigz	500
war-Moh-1	Mohmand	Ekka Ghun	Maichni ps	34.178	71.425	river	19.1	8	370	9.3	easy	acc_road	grid			
war-Khy-0I	Khyber	Bara	Sepah	33.87	71.366	canal	16.7	8	470	9.7	easy	acc_road	grid,solar			
war-Khy-0I	Khyber	Bara	Digra	33.894	71.425	river	18.1	8	430	9.5	easy	acc_road	grid,solar			
war-Khy-0I	Khyber	Bara	Bara Marki	33.916	71.462						easy					
war-Khy-1I	Khyber	Jamrud	Sakhi pull	34.072	71.39	canal	19.5	8	370	8.8	easy	acc_road	grid,solar			
war-Khy-1I	Khyber	Jamrud	Baqarabac	34.081	71.359	dam	23.8	8	200	6.1	easy	acc_road	none			
war-Khy-1I	Khyber	Jamrud	Ghundi Jar	34.029	71.378	borewell	25	7.6	560	6.6	easy	acc_road	grid,solar			
war-Khy-1I	Khyber	Jamrud	Jaba strear	33.975	71.324	stream	23.3	7.71	480	7	moderate	acc_dirt	solar			
war-Pes-2	Peshawar	Pishtakhar	Main Ring I	33.961	71.516	borewell	21.3	7.04	790	4.5	easy	acc_road	grid,solar	yes	gulfam,roh	20000
war-Khy-0I	Khyber	Mullagori	Loramiana	34.104	71.342	dam	22.1	7.8	260	4.8	easy	acc_road	solar			
war-Khy-1I	Khyber	Jamrud	Lala china	34.002	71.273	stream	24.3	8	570	8.1	easy	acc_road	solar,grid			
war-Pes-1I	Peshawar	Peshawar	Shairabad	34.095	71.51	borewell	23.5	7.7	740	5.2	easy	acc_road	grid,solar			
war-Khy-2I	Khyber	Jamrud	Shakkas	33.972	71.399	borewell	22.5	8	450	11.5	easy	acc_road	solar	yes	pangasis	3000
war-Koh-1I	Kohat	Kohat	Tanda Fish	33.568	71.397	dam	20	8	250	9.3	easy	acc_road	grid	yes	rohu,grass	6000000
war-Koh-1I	Kohat	Kohat	Tanda Dan	33.577	71.407	dam	22.2	8	470	6.5	easy	acc_road	solar,grid			
war-Koh-1I	Kohat	Kohat	Jurma	33.5	71.458	borewell	22.7	7.31	1050	7	easy	acc_road	grid,solar	yes	rohu,grass	500
war-Koh-1I	Kohat	Kohat	Dhoda	33.545	71.472	borewell	24.3	8	260	4.5	easy	acc_road	grid,solar	yes	rohu,grass	1000
war-Koh-1I	Kohat	Lachi	Darmalak I	33.423	71.244	dam	24.8	8	440	7.4	easy	acc_road	none			
war-Koh-1I	Kohat	Lachi	Darwezi Bz	33.381	71.448	dam	24.8	8	640	10.2	easy	acc_road	grid,solar			
war-Koh-1I	Kohat	Kohat	Poultry & F	33.588	71.441						easy					
war-Koh-0I	Kohat	Gumbat	Gandiyali	33.534	71.624	dam	22.1	8	460	5.1	easy	acc_road	none			
war-Koh-0I	Kohat	Ghumbat	Chorlaki ci	33.512	71.769	dam	20.2	8	280	7.8	easy	acc_road	grid	yes	rohu,silver	1800
war-Koh-1I	Kohat	Gumbat	Ghurzai pa	33.511	71.76	dam	21.1	7.5	350	4.7	easy	acc_road	grid	yes	gulfam,tha	1000
war-Koh-1I	Kohat	Gumbat	Auxillary K.	33.55	71.824	dam	23.2	7.5	270	4.9	easy	acc_road	none			
war-Koh-1I	Kohat	Gumbat	Kandar	33.562	71.845	dam	23.5	7.6	240	4.7	easy	acc_road	grid			
war-Koh-1I	Kohat	Gumbat	Khushal G.	33.484	71.907	river	17.8	7.8	290	9.2	easy	acc_road	grid			
war-Koh-1I	Kohat	Gumbat	Nakband	33.481	71.856	dam	21.5	7.4	370	5.4	easy	acc_road	none	yes	rohu,gulfai	3000
war-Koh-1I	Kohat	Kohat	Kharmatu	33.512	71.531	borewell	24	7.4	850	3.1	easy	acc_road	grid,solar	yes	grass	200
war-Koh-1I	Kohat	Kohat	Orakzai Ba	33.479	71.534	borewell	22.3	8	700	9.5	easy	acc_road	grid,solar	yes	grass,silve	400
war-Koh-1I	Kohat	Kohat	Shadi khail	33.452	71.552	borewell	22.2	8	1650	9.3	easy	acc_road	grid,solar	yes	rohu,thaila	400
war-Oral-1I	Orakzai	Lower Okri	Zuera	33.744	71.188	river	14.6	8	400	9.1	easy	acc_road	grid	yes	rohu,grass	500
war-Oral-1I	Orakzai	Lower Okri	Sepay	33.747	71.193	river	15	8	460	9.2	easy	acc_road	grid			
war-Oral-1I	Orakzai	Lower Oral	Undikhil Ba	33.776	71.145	river	16.8	7.6	420	9.2	easy	acc_road	grid			
war-Oral-1I	Orakzai	Lower Oral	Tazikhail	33.771	71.132	spring	17.3	7.3	520	4.9	easy	acc_road	grid			
war-Oral-1I	Orakzai	Lower Oral	Saam fero.	33.765	70.966	river	17.2	7.9	420	10	easy	acc_road	grid			
war-Oral-1I	Orakzai	Center Ori	Naka Mela	33.729	70.898	stream	16.5	8	390	9.5	easy	acc_road	grid			
war-Oral-1I	Orakzai	Center ora	Ganghana	33.729	70.875	stream	15.6	7.9	430	8.8	easy	acc_road	grid			
war-Oral-1I	Orakzai	Lower Oral	Kalayo Hez	33.746	70.954	stream	14.5	8	420	8	easy	acc_road	grid			
war-Han-0	Hangu	Hangu	Jouzara	33.586	71.21	stream	14.5	7.9	490	10	easy	acc_road	grid			
war-Han-1	Hangu	Hangu	Muhamma	33.458	70.93	dam	17.9	8	180	7.8	easy	acc_road	grid	yes	silver,gulfam,grass,roh	
war-Han-1	Hangu	Thal	Mamabadi	33.357	70.585	spring	19.5	7.7	750	8.5	easy	acc_road	solar	yes	rohu,mrigz	3000
war-Han-1	Hangu	Thal	Shakaly Ba	33.357	70.584	spring	21.7	8	730	8.8	moderate	acc_dirt	none			
war-Han-1	Hangu	Thal	Thal city	33.356	70.545	river	18.6	8	530	9.3	easy	acc_road	grid			
war-Han-1	Hangu	Hangu	Main Mark	33.531	71.06						easy					
war-Kar-1I	Karak	Danda Das	Sharki	33.292	71.977	dam	20.6	8	490	5.2	easy	acc_road	grid			
war-Kar-1I	Karak	Banda Das	Banda Das	33.273	71.176	dam	17.9	7.7	3240	6.5	easy	acc_road	grid			
war-Kar-1I	Karak	Babda Das	Ahmad Bai	33.254	71.193	dam	19.9	7.9	510	7.5	easy	acc_road	none			
war-Kar-1I	Karak	Banda Das	Inzar payai	33.231	71.178	dam	21.6	8	410	8.3	easy	acc_road	none			
war-Kar-1I	Karak	Banda Das	Niku Band.	33.234	71.182	dam	20.7	8	500	8.3	easy	acc_road	none	no		
war-Kar-1I	Karak	Danda Das	Peerdak	33.234	71.17	dam	21.1	8	380	7	easy	acc_road	none			
war-Kar-1I	Karak	Danda Das	Dangai Pir	33.225	71.17	dam	22.3	7.6	360	4.8	easy	acc_road	solar			
war-Kar-1I	Karak	Danda Das	Nari Panos	33.191	71.175	dam	22.1	8	330	6.3	easy	acc_road	none	yes	rohu,grass	0
war-Kar-1I	Karak	Karak	Chambal k	33.108	71.162	dam	20.2	8	30	8.5	easy	acc_dirt	none			
war-Kar-0E	Karak	Karak	Mithakhel	33.13	71.196	dam	18.7	8	310	6	moderate	acc_road	none			
war-Kar-0E	Karak	Karak	Zabi Dam	33.174	71.276	dam	18.7	8	710	5.8	easy	acc_road	solar			
war-Kar-0E	Karak	Karak	Makh Banc	33.174	71.352	dam	19.6	8	370	7.5	easy	acc_road	grid			
war-Kar-1I	Karak	Karak	Karak mair	33.115	71.0941						easy					
war-Kar-1I	Karak	Danda Das	Ghoul Dan	33.192	70.878	dam	22.5	7.7	770	5.4	easy	acc_road	none			
war-Kar-1I	Karak	Karak	Latamber I	33.125	70.864	dam	23.6	8	470	6.8	easy	acc_road	none			

war-Kur-2 Kurram	Parachinai Mali khel	33.747	70131 dam	17	6.55	220	10 easy	acc_dirt	none			
war-Kur-15 Kurram	Parachinai Agra	33.801	70.162 river	13	6.95	220	15 easy	acc_road	none			
war-Kur-16 Kurram	Parachinai Sidara	33.834	70.161 stream	15.5	6.78	220	7.5 easy	acc_road	none,grid	yes	grass,silve	800
war-Kur-17 Kurram	Parachinai Shublan	33.823	70.18 borewell	16	7.2	220	9 easy	acc_road	solar	yes	grass,silve	800
war-Ban-0 Banu	Domail Hikmataba	33.006	70.742 borewell	16.4	8	380	9.5 easy	acc_road	grid,solar	yes	rohu,mrigz	600
war-Ban-1 Banu	Banu Daramakh	33	70.631 river	17.5	8	260	7.7 easy	acc_road	grid			
war-Ban-1 Banu	Ghourawal Degan	32.933	70.699 canal	19.6	7.7	1010	6 easy	acc_road	solar,grid			
war-Ban-1 Banu	Banu Ghourawal	32.932	70.7 borewell	20	7.01	500	7 easy	acc_road	grid	yes	rohu,grass,silver,mrigz	
war-Ban-1 Banu	Banu Govt. Carp	32.942	70.67 borewell	18.9	8	970	7 easy	acc_road	grid	yes	rohu,mrigal,grass,gulfi.	
war-Ban-1 Banu	Banu Kachkot ct	32.994	70.586 canal	15.6	8	270	7.4 easy	acc_road	grid,solar			
war-Ban-1 Banu	Baka khel Baran Dam	33.01	70.499 dam	21	8	370	9.7 easy					
war-Ban-1 Bannu	Bannu City Bannu	33.014	70.695				easy					
war-Luc-01 Lucky Man Sara e nau	Dudhe wal	32.78	70.874 river	11.9	8	3000	10.4 easy	acc_road	grid			
war-Luc-01 Lucky Man Sarai Nour	Gamila	32.682	70.778 river	15	8	1700	100 easy	acc_road	solar,grid			
war-Luc-11 Luck Man Ghazni Kh. Pezu Dam		32.335	70.745 dam	18.2	8	200	9 easy	acc_road	none			
war-Luc-11 Lucky Man Lucky Man Thanedar s		32.607	71.118 borewell	18.9	8	1810	8 easy	acc_road	solar	yes	rohu,thaila	90000
war-Luc-11 Lucky Man Batanni	Awtkhil	32.651	70.494 canal	19.6	8	680	8 easy	acc_road	solar			
war-DI-10 DI Khan	DI Khan CRBC Can	31.983	70.839 canal	17.7	7.9	310	7.5 easy	acc_road	grid,solar			
war-DI-11 DI Khan	DI Khan Govt. Fish	31.886	70.89 borewell	20.7	7.7	890	6 easy	acc_road	grid,solar	yes	rohu,thaila,mrigal,silv	
war-DI-12 DI Khan	Paharpur Awan Nala	32.001	70.983 canal	21.1	8	660	6.1 easy	acc_road	grid			
war-DI-13 DI Khan	Paharpur Civil rakh /	32.09	70.962 borewell	22.5	8	980	6 easy	acc_road	solar	yes	rohu,thaila	15000
war-DI-14 DI Khan	Paharpur Wandha kt	32.091	70.958 borewell	23.5	7.8	990	5.2 easy	acc_road	solar	yes	rohu,thaila	62000
war-DI-14 DI Khan	Paharpur Toba	32.074	70.901 borewell	23.6	8	3590	5 easy	acc_road	solar	yes	rohu,thaila	32000
war-DI-15 DI Khan	Paharpur Baili / New	32.06	70.964 other	23.5	7.7	810	6.2 easy	acc_road	grid,solar			
war-DI-16 DI Khan	Paharpur Khaki T sip	32.059	71.073 river	19.8	7.9	310	5.6 easy	acc_dirt	none			
war-DI-17 DI Khan	Paharpur Khoji wali c	32.079	71.067 dam	21.1	7.6	860	5.2 moderate	acc_dirt	none			
war-DI-08 DI Khan	DI Khan Masood Fi	31.829	70.912				easy					
war-DI-08 DI Khan	DI Khan Daman Lal	31.777	70.896 dam	16.7	7.7	740	6.3 easy	acc_road	grid			
war-DI-09 DI Khan	DI Khan Custom La	31.761	70.931 dam	18.4	7.8	350	6.3 easy	acc_road	grid			
war-DI-09 DI Khan	DI Khan Roshan DI	31.767	70.88 dam	18.1	8	1730	5.9	acc_road	grid			
war-DI-10 DI Khan	Prova Shahpasar	31.732	70.819 canal	16.9	8	780	5.6 easy	acc_road	grid	yes	rohu,mrigz	1000
war-DI-11 DI Khan	Paroa Qayum Na	31.737	70.82 borewell	20.4	8	6000	6 easy	acc_dirt	solar,grid	yes	rohu,thaila	2000
war-DI-12 DI Khan	Paroa Draban kh	31.698	70.816 borewell	21.2	8	2340	6 easy	acc_road	solar	yes	rohu,thaila	44000
war-DI-13 DI Khan	Paroa Fareed wal	31.397	70.742 dam	23.7	7.8	710	4.4 moderate	acc_road	none			
war-DI-14 DI Khan	Paroa Nai wali DI	31.396	70.75 dam	22	7.8	1600	5 moderate	acc_dirt	grid,solar			
war-DI-16 DI Khan	Paroa Makar Dha	31.528	70.773 dam	22.7	7.7	1900	4.7 easy	acc_road	none			
war-DI-17 DI Khan	Prova Prova city	31.562	70.763 canal	22.4	7.9	1190	4.4 easy	acc_road	grid	yes	rohu,mrigz	800
war-Tan-01 Tank	Tank Ranwal/w	32.182	70.432 dam	19.2	8	1130	4.6 easy	acc_road	grid,solar			
war-Tan-01 Tank	Tank Tank bypat	32.184	70.406 dam	19	8	830	4 easy	acc_road	grid			
war-Tan-11 Tank	Tank Warana ca	32.18	70.336 canal	18	8	1200	4.2 easy	acc_road	grid			
war-Tan-11 Tank	Sub divion Karwam, J	32.304	70.172 stream	20.5	7.8	390	5 easy	acc_road	grid			
war-Tan-11 Tank	Tank Tank city fi	32.21	70.388									
war-Tan-11 Tank	Tank Kot pathan	32.228	70.396 canal	21.5	8	2200	4.6 easy	acc_road	grid	yes	rohu,mrigz	300
war-Nor-1 North Waz	Miransha Marsikhel		dam	0	7.91	0	0 moderate	acc_dirt				
war-Nor-1 North Waz	Miransha Chashma		stream	0	8	0	0 easy	acc_road	grid			
war-Nor-1 North Waz	Hulam Kh: Dandy Derdoni		dam	0	7.89	0	0 easy	acc_dirt	grid			
war-Nor-1 North Waz	Datakhel Boyo		stream	0	8	0	0 easy	acc_road	grid			
war-Nor-1 North Waz	Miransha Hamzony Alikhel		river	20	8	270	5 easy	acc_road				
war-Nor-0 North Waz	Miransha Miransha		canal	0	8	0	0 easy	acc_road	grid			
war-DI-09 DI Khan	Paharpur Band korai	32.082	70.948 borewell	17.2	8	3020	7.5 easy	acc_road	solar	yes	rohu,thaila	42000
war-Tor-12 Torghar	Khandar hu Chound mada khil		spring	18	6.65	0	6.4 difficult	acc_foot	none			
war-DI-13 DI Khan	Paharpur Kacha mal	32.422	71.316 dam	19.5	8	250	6.5 easy	acc_road	solar,grid			
war-DI-13 DI Khan	Paharpur Kacha cha	32.445	71.325 canal	17.2	8	150	7.2 easy	acc_road	grid,solar			
war-DI-14 DI Khan	Paharpur Chashma I	32.451	71.331 dam	21.5	8	320	6.5 easy	acc_road	grid,solar			
war-DI-15 DI Khan	Paharpur Atthog	32.348	71.228 canal	20	7.7	420	5.5 easy	acc_road	none,grid	yes	rohu,mrigz	10000
war-DI-17 DI Khan	Paharpur Hafiz Abad	32.08	71.038 canal	17.9	8	310	7 easy	acc_road	grid			
war-DI-11 DI Khan	Prova Qayum naj	31.74	70.822 borewell	20.4	8	3660	7 easy	acc_road	grid,solar	yes	rohu,thaila	70000
war-DI-12 DI Khan	Prova Draban vill	31.701	70.807 dam	20.1	8	630	5.5 easy	acc_road	solar,grid			
war-DI-13 DI Khan	Prova Dayra kha	31.756	70.934 river	22	8	310	6.7 easy	acc_road	grid			
war-DI-16 DI Khan	DI Khan CRBC Gon	31.878	70.824 canal	19.1	8	290	6.8 easy	acc_road	solar,grid			
war-Sou-1 South wazi Sarwekai	pir kalai	32.281	69.916 stream	19.5	7.06	360	5.6 easy	acc_road	none			
war-sou-11 south wazi serwekai	mowlekha	32.283	69.92 stream	17.5	7	300	6.2 easy	acc_road	solar,grid			
war-Sou-1 South wazi sarwekai	haji abad k	32.26	69.886 stream	19	6.5	280	7 easy	acc_road	grid,solar			
war-Sou-1 South wazi Wana	Nili kach	32.117	70 stream	25.4	7	215	5 easy	acc_road				
war-Sou-2 South wazi Tehsil wan	Gomal zan	32.129	69.897 river	21	6.95	225	5 easy	acc_road	grid,solar			
war-Sou-2 South wazi Wana	Dargaj pall	32.174	69.722 dam	20	6.5	270	4.5 easy	acc_road	grid,solar			
war-Sou-2 South wazi Wana	Gardai dhc	32.162	69.723 canal	18.7	6.75	265	5 easy	acc_road	grid,solar			
war-Sou-2 South wazi Wana	Tanai stree	32.218	69.68 stream	17.2	6.52	275	5 easy	acc_road	grid,solar			
war-Sou-2 South wazi Wana	Samar bag	32.195	69.614 stream	21.4	7.3	290	5.5 easy	acc_road	grid,solar			
war-Sou-2 South wazi Bermal	Raghzaiba	32.437	69.469 stream	8.9	7.5	280	5 easy	acc_road	grid,solar			
war-Sou-2 South wazi Bermal	khamrang	32.494	69.462 stream	7	7.4	300	8.5 easy	acc_road	grid,solar			
war-Sou-2 South wazi Wana	Tiarza Fish	32.314	69.614 borewell	16.5	6.75	270	4.5 easy	acc_road	grid,solar	yes	rohu,silver	1500
war-Sou-2 South wazi Wana	Mechan be	32.289	69.629 stream	21.6	7.5	250	4 easy	acc_road	solar,grid			
war-Sou-2 South wazi Wana	Karab kot s	32.265	69.644 stream	19	6.5	275	4.5 easy	acc_road	grid			
war-Sou-2 South wazi Wana	Wana bazz	32.305	69.589				easy					